Atty. Dkt. No. 023627-0301

REMARKS

Status of Claims:

Claims 1-21 are present for examination.

Interview Summary:

Applicant expresses appreciation to the Examiner for the courtesy of the telephonic interview on June 15, 2006. The following individuals participated in the interview: (i) SPE Caldwell; (ii) Examiner Lin; (iii) Robert Betros, first named inventor; (iv) David Blumenthal, attorney for applicant; and (v) Justin Sobaje, attorney for applicant.

Before the interview, applicant faxed to the Examiner an interview request form with an attached proposed amended claim 1. The proposed amended claim 1 that was faxed to the Examiner is the same as the currently amended independent claim 1 of the present reply.

During the interview, we discussed the proposed amended claim 1 while referring to Figs. 2 and 4 of the present application. SPE Caldwell agreed that the claim is specific.

We then discussed the Rangarajan reference (U.S. Patent No. 6,510,439) and the Cianfrocca reference (U.S. Patent No. 6,088,796).

In particular, Mr. Sobaje discussed Fig. 1 of the Rangarajan reference and explained that the connection between the client 24 and the HTTP server 16 in the system of Rangarajan is different from the connection between the CGI script 18 and the State Management Server 12 in the system of Rangarajan. Also, Mr. Sobaje discussed Fig. 5 of Rangarajan to explain that the client 24 sends a request for a document to the HTTP server 16 in step 60 of the method of Rangarajan, and then the HTTP server 16 sends a reply with the document to the client 24 in step 72 of the method of Rangarajan. Mr. Sobaje then explained that such communication between the client 24 and the HTTP server 16 in the system of Rangarajan is only request-response communication and does not allow for two-way asynchronous communication.

In addition, Mr. Sobaje discussed Figs. 2 and 3 of the Cianfrocca reference. With respect to Fig. 2 of the Cianfrocca reference, Mr. Sobaje explained that the connection between the end user 210 and the server 250 is different from the connection between the application server 280 and the messenger system 270. With respect to Fig. 3 of the Cianfrocca reference, Mr. Sobaje explained that if HTTP is used for communication in the system of Cianfrocca, then the system of Cianfrocca only allows for request-response communication and does not allow for two-way asynchronous communication. Mr. Sobaje further explained that the system of Cianfrocca can only establish full duplex connections when using a Connect Function of a Native Messenger System Protocol, such as the Native Tempest Messenger Protocol (TMSP), which is different from HTTP.

We then explained that a method in accordance with proposed amended claim 1 of the present application allows for enabling two-way asynchronous communication between a client and a web server to occur within a single HTTP transaction. We emphasized that neither Rangarajan nor Cianfrocca, alone or in combination, disclose such a method.

SPE Caldwell stated that he understood our remarks with respect to the references, but that he would like to see them in writing before he will agree that the claim rejection has been overcome. SPE Caldwell also asked about portions of the specification of the present application that provide support for the proposed amended claim. Mr. Sobaje pointed to page 3, lines 12-25; page 6, line 11 to page 7, line 24; and page 8, line 12 to page 9, line 12 of the specification of the present application in addition to the figures of the present application as providing support for the proposed amended claim.

SPE Caldwell said that he would review the specification for enablement. Robert Betros pointed to the client side logic 104 and to the CGI 124 in Fig. 1 of the present application, in conjunction with Figs. 2 and 4 of the present application, as allowing for performing two-way asynchronous communication.

SPE Caldwell stated that a supplemental amendment would be considered if it is faxed to the USPTO on or before June 19, 2006, at 9:00 am ET. No demonstrations were conducted and no exhibits were shown during the interview. No other pertinent matters were discussed.

Claim Rejections:

Claims 1-17 and 19-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Rangarajan et al. (U.S. Patent No. 6,510,439) (hereinafter Rangarajan) in view of Cianfrocca et al. (U.S. Patent No. 6,088,796) (hereinafter Cianfrocca).

Claim 18 is rejected under 35 U.S.C. 103(a) as being unpatentable over Rangarajan in view of Cianfrocca, and further in view of Reisman (U.S. Patent No. 6,611,862).

With respect to claims 1-21, as amended, the rejections are respectfully traversed.

Independent claim 1, as amended, recites a method for enabling two-way asynchronous communication between a client and a web server to occur within a single HTTP transaction, the method comprising:

> "opening, by the client, one socket connection to the web server;
>
> communicating an HTTP request from the client to the web server over the one socket connection as part of the single HTTP transaction, wherein the HTTP request is a request for the web server to initialize a CGI that operates within or in conjunction with the web server;
>
> initializing, by the web server, the CGI after receiving the HTTP request from the client;
>
> executing, by the CGI after the CGI has been initialized, operations to enable the **two-way asynchronous** communication between the client and the web server to occur **over the one socket connection** and wholly **within the single HTTP transaction** until the CGI operations are terminated by the client or the CGI; and
>
> closing, by the web server, the one socket connection after the CGI operations have been terminated;

wherein the **two-way asynchronous** communication between the client and the web server **over the one socket connection** and wholly **within the single HTTP transaction** allows for sending of particular information from the web server to the client and for sending of information from the client to the web server, said particular information and said information being communicated in **a protocol other than HTTP**; and

wherein the web server is able to send the particular information to the client without receiving a request from the client for the particular information." (Emphasis Added).

A method for enabling two-way asynchronous communication between a client and a web server to occur within a single HTTP transaction including the above-quoted features has at least the advantages that: (i) an HTTP request is communicated from the client to the web server over one socket connection as part of the single HTTP transaction, where the HTTP request is a request for the web server to initialize a CGI that operates within or in conjunction with the web server; (ii) the CGI executes, after the CGI has been initialized, operations to enable the **two-way asynchronous** communication between the client and the web server to occur **over the one socket connection** and wholly **within the single HTTP transaction** until the CGI operations are terminated by the client or the CGI; (iii) the two-way asynchronous communication between the client and the web server over the one socket connection and wholly within the single HTTP transaction allows for sending of particular information from the web server to the client and for sending of information from the client to the web server, where the particular information and the information are communicated in **a protocol other than HTTP**; and (iv) the web server is able to send the particular information to the client without receiving a request from the client for the particular information. (Specification; page 3, lines 12-25; page 6, line 11 to page 7, line 24; page 8, line 12 to page 9, line 12; Figs. 1, 2, and 4).

Neither Rangarajan nor Cianfrocca, alone or in combination, disclose or suggest a method including the above-quoted features.

In reviewing the cited references, it is important to first attempt to identify a client and a web server. Then, it is important to attempt to identify a socket connection between the client

and the web server over which an HTTP request is communicated to initialize a CGI as part of a single HTTP transaction. Finally, once the client, the web server, and the socket connection are purportedly identified, it is important to determine whether or not the CGI executes operations to enable **two-way asynchronous** communication between the client and the web server to occur **over the one socket connection** and wholly **within the single HTTP transaction**.

The Examiner points to Rangarajan, column 2, lines 61-64, as disclosing, "communicating an HTTP request from the client to the web server, wherein the HTTP request is configured to initialize a CGI". (Office Action; page 3). The client request indicated in column 2, lines 61-64 of Rangarajan corresponds to a client request from client 24 to HTTP server 16 in FIG. 1 of Rangarajan. (Rangarajan; FIG. 1; column 2, lines 61-64; column 6, lines 55-58). Thus, the Examiner is treating the **client 24** of the system of Rangarajan as the **client** of the present claim and is treating the **HTTP server 16** of the system of Rangarajan as the **web server** of the present claim. (Rangarajan; FIG. 1). As a consequence, the relevant socket connection to examine would be a connection between the client 24 and the HTTP server 16 in the system of Rangarajan.

The CGI script 18 in the system of Rangarajan does not execute operations to enable **two-way asynchronous** communication between the client 24 and the HTTP server 16 to occur **over the socket connection** between the client 24 and the HTTP server 16. (Rangarajan; FIG. 1). Instead, the client 24 merely sends a client **request** and an accompanying cookie to the HTTP server 16 over the socket connection between the client 24 and the HTTP server 16, and then the HTTP server 16 merely sends back **a reply to the request** with an accompanying cookie to the client 24 over the connection between the client 24 and the HTTP server 16. (Rangarajan; FIG. 1; column 2, lines 64-66; column 3, lines 30-33; column 4, lines 40-42; column 6, lines 8-11 and 55-58; column 7, lines 42-44). Such request-reply communication between the client 24 and the HTTP server 16 in the system of Rangarajan is by definition only synchronous communication, and is not **two-way asynchronous** communication as claimed in the present claim 1.

The Examiner points to Rangarajan (column 2, lines 3-6; column 6, lines 55-67; and column 7, lines 10-13) as disclosing that, "CGI script is configured to establish an Internet socket (two-way asynchronous communication) connection with SMS". (Office Action; page 3). The CGI script referred to by the Examiner corresponds to the CGI script 18 in FIG. 1 of Rangarajan, and the SMS referred to by the Examiner corresponds to the State Management Server 12 in FIG. 1 of Rangarajan. (Rangarajan; FIG. 1; column 7, lines 5-13) (Advisory Action; page 2). Thus, the Internet socket identified by the Examiner is between the CGI script 18 and the SMS 12 in the system of Rangarajan, and not between the client 24 and the HTTP server 16.

In considering the Internet socket identified by the Examiner between the **CGI script 18** and the **SMS 12** in the system of Rangarajan, it is first important to note that the Internet socket is separate and distinct from the socket connection between the **client 24** and the **HTTP server 16**. (Rangarajan; FIG. 1; column 3, lines 12-16; column 7, lines 10-15). As a consequence, the Internet socket identified by the Examiner between the CGI script 18 and the SMS 12 in the system of Rangarajan cannot be considered as being a socket connection of the present claim, because a socket connection of the present claim is a socket connection over which an HTTP request to initialize a CGI is communicated from a client to a web server, and which allows for two-way asynchronous communication between the client and the web server. The Internet socket identified by the Examiner in the system of Rangarajan is not even between the client 24 and the HTTP server 16. (Rangarajan; FIG. 1; column 3, lines 12-16; column 7, lines 10-15).

Moreover, even when looking at the Internet socket between the CGI script 18 and the SMS 12 in Rangarajan, it is important to note that the CGI script 18 does not even execute operations to enable two-way asynchronous communication between the CGI script 18 and the SMS 12 over the Internet socket. Instead, the CGI script 18 merely forwards a URL and any received cookies to the SMS 12 over the Internet socket, and then, **in response**, the SMS 12 merely returns a path identifying a location of a document along with a modified cookie. (Rangarajan; column 3, lines 12-26; column 7, lines 10-42). Thus, the communication between the CGI script 18 and the SMS 12 is only synchronous, because the CGI script 18 merely sends a

request to the SMS 12 and the SMS 12 merely responds to the request. (Rangarajan; column 3, lines 16-21).

In the Advisory Action, the Examiner notes that Rangarajan discloses that a prior art technique for providing coherency between files in a group that are retrieved from a server is, "restrictive in practice", and that, "it would be advantageous to provide a system and method for consistent update and retrieval of documents from an Internet server". (Rangarajan; column 2, lines 15-34) (Advisory Action; page 2). The Examiner then attempts to conclude that, "[t]his leads Rangarajan's disclosure in col. 7, 1.5-12 to establish an Internet socket, which sending and receiving can be occurred simultaneously, therefore it is a two-way asynchronous communication between client and server using HTTP." (Advisory Action; page 2).

However, contrary to the Examiner's assertion, Rangarajan did not solve the problem of consistent update and retrieval of documents by providing for **two-way asynchronous** communication between a client and a server, but rather uses **cookies** to maintain state information, where the **cookies** are sent along with requests to obtain replies through **synchronous** communication. (Rangarajan; abstract; FIG. 5; column 1, lines 21-38; column 3, lines 2-8; column 6, lines 8-50; column 7, lines 30-42; column 11, lines 18-35). The **cookies** provide state information about previously accessed documents from previous requests. (Rangarajan; column 3, lines 2-8).

Cianfrocca does not cure the deficiencies with respect to the teaching of Rangarajan discussed above. The Examiner recognized that, "Applicant argues that the system of Cianfrocca only allows for establishing a synchronous socket connection between a message system and a client in response to an HTTP request." (Advisory Action; page 2). The Examiner then states that, "Cianfrocca discloses the asynchronous message-oriented middleware product supports HTTP, HTTPS, and SMTP". (Advisory Action; page 2) (Cianfrocca; column 3, lines 66-67; column 4, lines 1-2). The Examiner further states that, "Cianfrocca further discloses in col. 2, 1.46-50, that the invention is to provide an improved asynchronous message-oriented middle

product that also operated as an HTTP server and provides full-duplex socket connection." (Advisory Action; page 2).

However, while the messenger system in the system of Cianfrocca may support multiple protocols, such as HTTP, HTTPS, SMTP, and a native messenger system protocol (TMSP), **only** the native messenger system protocol in the system of Cianfrocca allows for full-duplex connections. (Cianfrocca; FIGs. 2 and 3; column 3, line 66 to column 4, line 47). Indeed, Cianfrocca states that the messenger system, "can identify the protocol used for a connection and treat it appropriately." (Cianfrocca; column 4, lines 7-10; column 12, lines 4-14; column 14, lines 54-62) (Emphasis Added). A web browser connects to the messenger system in the system of Cianfrocca using HTTP in the same way it would connect to an **ordinary** HTTP server. (Cianfrocca; column 4, lines 12-14). As a consequence, the HTTP connections in the system of Cianfrocca are only synchronous connections. Cianfrocca even states that, "[t]he nature of a HTTP request is that there is request for connection which is made to respond to a single query." (Cianfrocca; column 8, lines 48-50). It is important to understand the following paragraph in Cianfrocca:

> "Different types of programs connect to the messenger system in different ways. A web browser connects to the messenger system using HTTP in the **same way** it would connect to an **ordinary HTTP server**. In the case of HTTP 1.0, the messenger system knows to close the socket connection once information is sent back to the web browser. In addition to a web server, the messenger system can interface with a mail server, directory server, security server and proxy server." (Cianfrocca; column 4, lines 11-19) (Emphasis Added).

Thus, the HTTP connections in the system of Cianfrocca are only synchronous. In order to have a full duplex socket in the system of Cianfrocca, it is necessary to use a Connect function of the native messenger system protocol, which is separate from a single HTTP transaction. (Cianfrocca; column 4, lines 32-42).

Moreover, applicant has further amended independent claim 1 with the features of: (i) the **two-way asynchronous** communication between the client and the web server **over the one**

socket connection and wholly **within the single HTTP transaction** allows for sending of particular information from the web server to the client and for sending of information from the client to the web server, where the particular information and the information are communicated in **a protocol other than HTTP**; and (ii) the web server is able to send the particular information to the client without receiving a request from the client for the particular information. Such features are not shown in either of Rangarajan or Cianfrocca.

Therefore, independent claim 1, as amended, is neither disclosed nor suggested by the Rangarajan and Cianfrocca references and, hence, is believed to be allowable. The Patent Office has not made out a *prima facie* case of obviousness under 35 U.S.C. 103.

Independent claim 9, as amended, recites a system with features similar to features of a method of independent claim 1. Therefore, independent claim 9 is believed to be allowable for at least the same reasons that independent claim 1 is believed to be allowable.

Independent claim 20, as amended, recites a method with features similar to features of a method of independent claim 1. Therefore, independent claim 20 is believed to be allowable for at least the same reasons that independent claim 1 is believed to be allowable.

Independent claim 21, as amended, recites a system with features similar to features of a method of independent claim 1. Therefore, independent claim 21 is believed to be allowable for at least the same reasons that independent claim 1 is believed to be allowable.

The dependent claims are deemed allowable for at least the same reasons indicated above with regard to the independent claims from which they depend. It is noted that, with respect to dependent claim 18, Reisman does not cure the deficiencies with regard to the teachings of Rangarajan and Cianfrocca discussed above.

Enablement:

During the interview on June 15, 2006, SPE Caldwell raised the issue of enablement, and applicant wishes to respond as follows.

The subject matter of independent claim 1 is described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. In particular, the specification of the present application at page 6, line 11 to page 7, line 24 and at page 8, line 12 to page 9, line 12, in conjunction with Figs. 1-4 of the present application, describes how to perform a method such as a method of independent claim 1.

An opening of a socket connection is discussed in the specification at page 5, lines 17-28; page 6, lines 14-18; and page 8, lines 12-18. For example, page 6, lines 14-18, states the following:

> "At step 210, a socket connection is opened between the client and the web server. In particular, a client opens the client-side component of the socket connection, and sends a notification to the host on which the web server is residing, which causes the web server to open the corresponding server-side component of the connection." (Specification; page 6, lines 14-18).

Communicating an HTTP request that is a request for a web server to initialize a CGI is discussed in the specification at page 6, lines 19-24; and page 7, line 25 to page 8, line 2. For example, page 6, lines 19-24 states the following:

> "At step 215, an HTTP request is communicated over the opened socket connection. In a particular embodiment, the client then sends the header component of the HTTP request to the web server. The header contains information that specifies a task to be performed by the web server. According to an embodiment of the invention, the requested task is to initialize and execute a CGI, shown with reference to step 220." (Specification; page 6, lines 19-24).

Initializing a CGI after receiving an HTTP request to initialize the CGI is discussed in the specification at page 6, line 24; and page 7, line 29 to page 8, line 2. For example, page 7, line 29 to page 8, line 2 states the following:

"The HTTP request is comprised of an HTTP request header that tasks the web server to execute the CGI for performing specific operations. At step 315, the CGI is initialized." (Specification; page 7, line 29 to page 8, line 2).

Executing, by a CGI, operations to enable two-way asynchronous communication between a client and a web server to occur over one socket connection and wholly within a single HTTP transaction until the CGI operations are terminated by the client or the CGI is discussed in the specification at page 6, line 24 to page 7, line 23; and page 8, lines 3-8. Also, a corresponding client side process is discussed in the specification at page 8, line 18 to page 9, line 7. Moreover, the same portions of the specification, along with Figs. 2 and 4, disclose information being communicated in a protocol other than HTTP within the single HTTP transaction and that particular information is able to be sent from the web server without receiving a request from the client for the particular information. For example, page 6, line 24 to page 7, line 23 states the following:

"Once initialized, the CGI is executed at step 225. The CGI can be configured with multiple operations.

According to an embodiment of the invention, one operation of the CGI is the reading of client requests at step 230, and another operation of the CGI is the sending of information to the client at step 232. These two operations are used to perform the two-way asynchronous communication with the client. These two operations can also include the processing of information received from the client at step 240, and the creation of information to send to the client at step 242. In one particular embodiment, the information sent or received by the CGI is compliant with a protocol other than HTTP.

The second operation is illustrated in greater detail with reference to step 232, in which the CGI sends information to the client. The second operation includes the creation of information to send to the client, illustrated with reference to step 242. If there is no information to send, the second operation of the CGI waits for the creation of information to occur. When the information is available, as shown with step 242, the information is sent to the client at step 232. The second operation continually repeats until the CGI is terminated, the method for which is described below.

Referring again to step 230, in which the CGI reads client requests, a determination is made at step 235 whether the client request is a termination

request. If no termination request is received, the information received in the request is processed by the first operation of the CGI at step 240. If a client request includes a termination request, the CGI ends at block 245. When the CGI ends, the second operation of the CGI is terminated accordingly.

In an exemplary embodiment, the task of performing two-way asynchronous communication is accomplished within a single HTTP transaction. According to HTTP standards, a single HTTP transaction should be a persistent communication with a client until the transaction is complete, unless the web server is notified otherwise. Thus, in accordance with the invention, the CGI will continue until notified by the client." (Specification; page 6, line 24 to page 7, line 23).

Closing a socket connection after CGI operations have been terminated is discussed in the specification at page 7, lines 23-24; and page 9, lines 8-12. For example, page 7, lines 23-24 states the following:

"At step 250, upon termination of the CGI, the socket connection is closed. The method 200 ends at step 255." (Specification; page 7, lines 23-24).

A person skilled in the art would only have to follow the flowcharts in Figs. 2 and 4 of the present application along with the accompanying description of the figures to make and/or use the claimed invention. While the specification did not set forth code for the processes, writing code would be a straightforward and routine exercise given the flowcharts and descriptions in the specification associated therewith. The code is resident, in exemplary embodiments, in the client side logic 104 on the client side and in the CGI 124 on the web server side.

Conclusion:

Applicant believes that the present application is now in condition for allowance. Favorable reconsideration of the application as amended is respectfully requested.

The Examiner is invited to contact the undersigned by telephone if it is felt that a telephone interview would advance the prosecution of the present application.

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The Commissioner is hereby authorized to charge any additional fees which may be required regarding this application under 37 C.F.R. §§ 1.16-1.17, or credit any overpayment, to Deposit Account No. 50-0872. Should no proper payment be enclosed herewith, as by a check or credit card payment form being in the wrong amount, unsigned, post-dated, otherwise improper or informal or even entirely missing, the Commissioner is authorized to charge the unpaid amount to Deposit Account No. 50-0872.

If any extensions of time are needed for timely acceptance of papers submitted herewith, Applicant hereby petitions for such extension under 37 C.F.R. §1.136 and authorizes payment of any such extensions fees to Deposit Account No. 50-0872.

Respectfully submitted,

Date June 16, 2006

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